

AMENDMENTS

In the claims:

Please add the following new claims 148-159.

⁵⁰ ~~148~~: (New) A plurality of identical oligonucleotide primers of defined length and base sequences wherein each primer is covalently coupled to a fluorophore or chromophore so as to allow chain extension by a polymerase.

⁵¹ ~~149~~: (New) The plurality of claim ~~148~~ wherein said primers have a free 3' hydroxyl group.

⁵² ~~150~~: (New) The plurality of claim ~~149~~ wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

⁵³ ~~151~~: (New) The plurality of claim ~~148~~ wherein said primers are coupled to said fluorophore or chromophore by an amine linkage.

⁵⁴ ~~152~~: (New) A composition comprising the plurality of claim ~~148~~.

⁵⁵ ~~153~~: (New) The composition of claim ~~152~~ further comprising a buffer.

⁵⁶ ~~154~~: (New) A set of reagents comprising the plurality of claim ~~148~~ and a polymerase.

⁵⁷ ~~155~~: (New) A set of reagents comprising two or more pluralities of oligonucleotide primers of claim ~~148~~ wherein each plurality has a different emission spectra.

156. (New) A plurality of single-stranded labeled polynucleotides produced by the method comprising the steps of hybridizing the plurality of oligonucleotide primers of claim 148 to a template thereby forming a plurality of duplexes; extending the primers of said duplexes by a polymerase thereby forming labeled polynucleotides; and separating said labeled polynucleotides from said duplexes.

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~~157.~~ (New) A set of single stranded labeled polynucleotides comprising two or more pluralities of polynucleotides of claim ⁵⁸ ~~156~~, wherein each plurality has a different emission spectra.

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~~158.~~ (New) The plurality of claim ~~148~~ wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

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~~159.~~ (New) The plurality of claim ~~148~~ wherein the chromophore or fluorophore is detectable by exposure to a laser.--

Please amend claims 76-77, 83, 98-99, 100-101, 105-107, 109-111, 118-119, 127-129, and 139-146 as follows:

2 ~~76.~~ (Four times amended) A duplex comprising [a template and] an extended oligonucleotide primer[,] and a template, produced by providing a duplex according to claim ~~75~~ and extending the oligonucleotide primer with a polymerase.

3 ~~77.~~ (Four times amended) A single-stranded labeled polynucleotide [oligonucleotide] produced by separating the extended oligonucleotide primer [of claim 76] from the [template] duplex of claim ² ~~76~~.

~~83~~. (Three times amended) A set of polynucleotides [oligonucleotides] comprising two or more [of the] single-stranded labeled polynucleotides [oligonucleotides] of claim 77.

~~8~~ ~~98~~. (Three times amended) A single-stranded labeled polynucleotide [oligonucleotide] comprising a first portion and a second portion,

wherein the first portion comprises an oligonucleotide [fragment] primer covalently coupled to a chromophore or fluorophore; and

wherein the second portion is produced by extension of the first portion along a complementary template.

I3 ⁹ ~~99~~. (Three times amended) The polynucleotide [oligonucleotide] of claim ~~98~~⁸, wherein the chromophore or fluorophore is covalently coupled to the first portion through an amine linkage.

¹⁰ ~~100~~. (Three times amended) The polynucleotide [oligonucleotide] of claim ~~98~~⁸, wherein the chromophore or fluorophore is covalently coupled to the first portion at its 5' end.

¹¹ ~~101~~. (Four times amended) The duplex of claim ~~75~~¹, prepared by a method comprising[:] hybridizing an oligonucleotide primer to a template, wherein the primer is covalently coupled to a chromophore or fluorophore so as to allow chain extension by a polymerase.

I4 ~~105~~. (Four times amended) A[n] single-stranded labeled polynucleotide [oligonucleotide] produced by the method comprising the steps of extending the oligonucleotide primer of the duplex of claim ~~75~~¹ by a polymerase to produce a[n] labeled polynucleotide [oligonucleotide] and separating the labeled polynucleotide [oligonucleotide] from the template.

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106, (Five times amended) The polynucleotide [oligonucleotide] of claim ¹⁴105, wherein the chromophore or fluorophore is covalently coupled to the oligonucleotide through an amine linkage.

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107, (Five times amended) The polynucleotide [oligonucleotide] of claim ¹⁴105, wherein the chromophore or fluorophore is covalently coupled to the oligonucleotide at its 5' end.

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109, (Five times amended) A chain termination DNA sequencing method comprising extending the primer of the duplex of claim ¹75 by a polymerase to produce a[n] labeled polynucleotide, [extended primer] and separating the labeled polynucleotide [extended oligonucleotide] from the template.

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110, (Four times amended) A chain termination DNA sequencing method comprising extending the [set of] primers of the set of duplexes of claim ⁴81 by a polymerase to produce a set of labeled polynucleotides [extended primers].

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¹⁸ 111, (Four times amended) The chain termination DNA sequencing method of claim 110, wherein the set of duplexes [reaction] comprises four [chain termination] DNA sequencing reactions, wherein each labeled polynucleotide is [and the covalently coupled oligonucleotides comprising each of the four reactions are] distinguishable by spectral characteristics of the chromophore or fluorophore covalently coupled thereto.

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118, (Three times amended) The oligonucleotide primer of claim ¹75 [77], wherein the primer is DNA.

21 119 (Three times amended) The oligonucleotide primer of claim ¹75[77] wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

16 29 127 (Twice amended) The polynucleotide [oligonucleotide of] of any of claims ¹⁴105 to 107, wherein the primer is DNA.

I7 16 30 128 (Twice amended) The polynucleotide [oligonucleotide of] of any of claims ¹⁴105 to 107, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

16 31 129 (Twice amended) The polynucleotide [oligonucleotide of] of any of claims ¹⁴105 to 107, wherein the chromophore or fluorophore is detectable by exposure to a laser.

41 139 (Once amended) The polynucleotide [oligonucleotide] of claim ³77, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

42 140 (Once amended) The polynucleotide [oligonucleotide] of claim ³77, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

I8 43 141 (Once amended) The polynucleotide [oligonucleotide] of claim ³77, wherein the chromophore or fluorophore is detectable by exposure to a laser.

Cont 44 142 (Once amended) The set of polynucleotides [oligonucleotides] of claim ⁶83, wherein the primers are DNA.

45 143 (Once amended) The set of polynucleotides [oligonucleotides] of claim ⁶83, wherein the chromophore or fluorophore is detectable by exposure to a high-intensity monochromatic light source.

4 144. (Once amended) The set of polynucleotides [oligonucleotides] of claim ⁶83, wherein the chromophore or fluorophore is detectable by exposure to a laser.

47 145. The set of polynucleotides [oligonucleotides] of claim ⁶83, wherein the chromophore or fluorophore is covalently coupled to the primer through an amine linkage.

48 146. The set of polynucleotides [oligonucleotides] of claim ⁶83, wherein the chromophore or fluorophore is covalently coupled to the primer at its 5' end.

REMARKS

Claims 75-77, 81-83, 88, 98-103, 105-107, 109-111, and 118-147 were pending in the present application. By virtue of this response, claims 76-77, 83, 98-99, 100-101, 105-107, 109-111, 118-119, 127-129, and 139-146 have been amended, and new claims 148-159 have been added. Accordingly, claims 75-77, 81-83, 88, 98-103, 105-107, 109-111, 118-159 are currently under active prosecution. Applicants submit that the present submission of amendments to the claims and addition of new claims is to more clearly point out and define the invention. None of the amendments have been made in response to a prior art rejection. Amendment and cancellation of certain claims is not to be construed as a dedication to the public of any subject matter of claims as previously presented. For the Examiner's convenience, an attachment listing the claims presently under consideration, incorporating the current amendments, is attached to this response.

Concerning amended claims, claims 76-77, 83, 98-99, 100-101, 105-107, 109-111, 118-119, 127-129 and 139-146 have been amended to clarify antecedent basis. Claims 77, 98, 105, 109, 110 and claims dependent thereon, have been amended to recite "labeled polynucleotide" when referring to an oligonucleotide primer extension product in order to distinguish from oligonucleotide primer.